

REMARKS

The Office Action dated May 8, 2008 has been received and carefully studied.

The Examiner rejects claims 1-3, 5-7, 10 and 12 under 35 U.S.C. §102(b) as being anticipated by Asano, JP 2004-061925), as evidenced by Wikipedia (Ball Mill). The Examiner states that Asano teaches a sealing material for liquid crystals produced by homogeneously dispersing fine particles (D) having an average particle size of not more than 3 microns in a reactive resin (C) having an epoxy group and (meth)acryloyl group (acrylic or methacrylic acid), dissolution mixing of the epoxy resin of many organic functions using a ball mill which is a wet dispersion unit (A) in which a dispersion vessel (a) contains media (b) as dispersing media and a rapidly rotating stirrer (c) disperses agglomerated particles by allowing the media to collide with each other in a high-speed rotating field. The Examiner cites Wikipedia as evidence that a ball mill is a dispersion unit (A) in which a dispersion vessel (a) contains media (b) as dispersing media and a rapidly rotating stirrer (c) disperses agglomerated particles by allowing the media to collide with each other in a high-speed rotating field.

The Examiner also rejects claims 1-7 and 10 under 35 U.S.C. §102(b) as being anticipated by Sumita, U.S. Patent Publ. No. 2002/0089071A1, again as evidenced by Wikipedia (Ball Mill). The Examiner states that Sumita teaches a sealing material produced by homogeneously dispersing fine particles (D) having an average

particle size of not more than 3 microns in a reactive resin (C) having an epoxy group using a ball mill which is a wet dispersion unit (A) in which a dispersion vessel (a) contains media (b) as dispersing media and a rapidly rotating stirrer (c) disperses agglomerated particles by allowing the media to collide with each other in a high-speed rotating field (as shown by the Wikipedia reference).

The Examiner also rejects claims 8, 9 and 12 under 35 U.S.C. §103(a) as being unpatentable over Sumita, as evidenced by Wikipedia, and further in view of Tahara, U.S. Patent No. 5,665,797; claims 4 and 8 under 35 U.S.C. §103(a) as being unpatentable over Asano, as evidenced by Wikipedia, and further in view of Tahara; and claim 9 under 35 U.S.C. §103(a) as being unpatentable over Asano in view of Tahara, as evidenced by Wikipedia, and further in view of Sumita. Tahara is cited for its disclosure that rubber fine particles are cross-linked for the purpose of providing deformation resistance when dispersed in a reactive resin (C) having an epoxy group, and for its teaching that it is common practice to use a reactive resin having an epoxy group as a sealing material in the form of a cured product for sealing a liquid crystal display cell.

The rejections are respectfully traversed.

The gist of the present invention is described in Claim 1. Namely, the sealing material for liquid crystals of the present invention is produced by a process comprising a specified dispersion treatment which comprises: homogeneously

dispersing fine particles (D) having a specified average particle size in a specified reactive resin (C) dissolved in a solvent (B) using a wet dispersion unit (A).

Because the solvent (B) is not an ingredient of the sealing material, in order to realize the condition for said specified dispersion treatment, solvent (B) is first added to the wet dispersion unit (A) and removed after the dispersion treatment.

During this specified dispersion treatment, the fine particles (D) and the reactive resin (C) receive a very complex action from the media (b) contained in a dispersion vessel (a) and colliding with each other in a high-speed rotating field. This action from the media (b) in the dispersion vessel (a) is an action which is characteristic of a dispersion treatment in a wet dispersion unit. Thus, after the specified dispersion treatment, the structure including the size, shape, surface condition and the like of the fine particles (D) as well as the dispersion state of the fine particles (D) in said reactive resin (C) is believed to be brought to a special state which will not be realized by other types of dispersion treatments. Since this action from the media (b) is very complex, it is very difficult to exactly define this special state of the structure of the fine particles (D) and the dispersion state of the fine particles (D) in the reactive resin (C), i.e., the result of this action. Therefore, this special state has been defined

by the process by which the sealing material of the present invention is produced.

Accordingly, although the claims are described in a product-by-process claim format, the state itself of the sealing material of the present invention is defined by this process description.

The fact that the state itself of the sealing material of the present invention is different from that of the sealing material produced by other process is clearly shown in the Examples of the present Specification. As shown in Table 1, Examples 1 to 3 which are produced by the producing method of the present invention (using a continuous system sand mill) excel in adhesive strength and gap-forming ability, and Comparative Examples 1 and 2 which are produced by different methods (using a three-roll mill) are significantly inferior in these required properties, even though the compositions are identical.

This special state of the sealing material of the present invention cannot be realized without actively selecting the specified dispersion treatment as the dispersion treatment of the particles and the resin.

With specific reference to the rejection of claims 1-3, 5-7, 10 and 12 under 35 USC § 102(b) as being anticipated by Asano (JP 2004-61925) as evidenced by a Wikipedia document, in paragraph [0037] of Asano, it is described that a known mixing device, for example, a three-roll mill, a sand mill, a ball

mill and the like is used to uniformly mix the ingredients. However, in the examples of Asano only a three-roll mill is used and there is no description or suggestion that a sand mill or a ball mill should be used instead for the purpose of obtaining a better results thereby.

Regarding the state of the sealing material obtained in the examples of Asano using a three-roll mill, it is believed that it is similar to that of the sealing material obtained in Comparative Examples 1 and 2 of the present specification.

Therefore, Asano does not disclose or suggest the special state of the sealing material of the present invention which cannot be realized without actively selecting the specified dispersion treatment as the dispersion treatment of the particles and the resin, and the present invention is thus patentable over the disclosure of Asano.

With respect to the rejection of claims 1-7 and 10 under 35 USC § 102(b) as being anticipated by Sumita (US2002/0089071) as evidenced by a Wikipedia document, in paragraph [0057] of Sumita, it is described that an apparatus such as an automated mortar, a three-roll mill, a ball mill, a planetary mixer and the like is used to mix, stir, and disperse the ingredients. However, in the examples of Sumita only a three-roll mill is used and there is no description or suggestion that a ball mill should be used instead for the purpose of obtaining a better results thereby.

Regarding the state of the sealing material obtained in

the examples of Sumita using a three-roll mill, it is believed that it is similar to that of the sealing material obtained in Comparative Examples 1 and 2 of the present specification.

Therefore, Sumita does not disclose or suggest the special state of the sealing material of the present invention which cannot be realized without actively selecting the specified dispersion treatment as the dispersion treatment of the particles and the resin, and the present invention is patentable over the disclosure of Sumita.

With reference to the rejection of claims 8-9 and 12 under 35 USC § 103(a) as being obvious over Sumita (US2002/0089071) as evidenced by a Wikipedia document and further in view of Tahara (US5665797), as explained above, the present invention is patentable over the disclosure of Sumita. Although Tahara discloses rubber fine particles which are cross-linked, which is the subject of claims 8-9 of the captioned application, Tahara in no way supplies the deficiencies of Sumita.

Therefore, the present invention is not obvious over the disclosure of Sumita in view of Tahara.

Claims 4 and 8 are rejected under 35 USC § 103(a) as being obvious over Asano (JP 2004-61925) as evidenced by a Wikipedia document and further in view of Tahara (US5665797).

As explained above, the present invention is patentable over the disclosure of Asano. Although Tahara discloses rubber fine particles which are cross-linked and having a specified average

particle size, which is the subject of Claims 4 and 8 of the captioned application, Tahara in no way supplies the deficiencies of Asano.

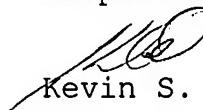
Therefore, the present invention is not obvious over the disclosure of Asano in view of Tahara.

Claim 9 is rejected under 35 USC § 103(a) as being obvious over Asano in view of Tahara as evidenced by a Wikipedia document and further in view of Sumita. As explained above, the present invention is patentable over the disclosure of Asano in view of Tahara. Although Sumita discloses rubber fine particles that have a core-shell structure, which is the subject of Claim 9 of the captioned application, Sumita does not supply the deficiencies of the combination of Asano and Tahara.

Therefore, the present invention is not obvious over the disclosure of Asano in view of Tahara and further in view of Sumita.

Reconsideration and allowance are respectfully requested in view of the foregoing.

Respectfully submitted,


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